



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,242	01/19/2006	Masahiro Goto	126735	9153

25944 7590 01/30/2008  
OLIFF & BERRIDGE, PLC  
P.O. BOX 320850  
ALEXANDRIA, VA 22320-4850

EXAMINER
----------

LAVARIAS, ARNEL C

ART UNIT	PAPER NUMBER
----------	--------------

2872

MAIL DATE	DELIVERY MODE
-----------	---------------

01/30/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

TH

<b>Office Action Summary</b>	<b>Application No.</b> 10/565,242	<b>Applicant(s)</b> GOTO, MASAHIRO	
	<b>Examiner</b> Arnel C. Lavarias	<b>Art Unit</b> 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 4/27/06, 1/19/06.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892).   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/27/06, 1/19/06</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

1. The amendments to the title of the disclosure in the preliminary amendment filed 1/19/06 are acknowledged and accepted.

### *Priority*

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Drawings*

3. The originally filed drawings were received on 1/19/06. These drawings are acceptable.

### *Specification*

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. *The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided.* The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Art Unit: 2872

5. The abstract of the disclosure is objected to because of the following informalities:

Abstract, line 3- 'said' should read 'the'.

Correction is required. See MPEP § 608.01(b).

6. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. Examples of such errors are set forth below.

7. The disclosure is objected to because of the following informalities:

Page 3, line 36- insert 'a' after 'Fig. 2 is'

Page 4, line 3- insert 'a' after 'Fig. 3 is'

Page 5, lines 26, 30- 'Light' should read 'light'

Page 9, line 5- 'a' should read 'an'

Page 16, line 23- insert 'be' after 'may'

Page 17, line 30- 'ray' should read 'rays'

Page 17, line 36- '85' should read 'L85'

Page 20, line 6- insert 'the' after 'According to'.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

Art Unit: 2872

such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 4, 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moshrefzadeh et al. (WO 01/04701 A1), of record, in view of Arai (U.S. Patent No. 6049649).

Moshrefzadeh et al. discloses a light-diffusing sheet (See for example Figures 5, 7-9) having a flat entrance surface (See for example upper surface of 506 near 500 in Figures 5A-B) and an exit surface (See for example bottom surface of 502 in Figures 5A-B) parallel to the flat entrance surface, said light-diffusing sheet comprising a sheet body (See for example 506 in Figures 5A-B); and a plurality of wedge-shaped parts (See for example 504 in Figures 5A-B), each being embedded on the side of the exit surface of the sheet body, having a section of a shape substantially resembling a wedge, expanding toward the exit surface, and being formed of a resin having a refractive index lower than that of a material of the sheet body (See for example Page 14, line 28-Page 16, line 19); wherein each of the side surfaces of each of the wedge-shaped parts is formed of inclined surfaces constituting a polygonal surface (See specifically Figures 8A-B), angles formed by the inclined surfaces of each side surface and the perpendicular to the entrance surface gradually become greater toward the exit surface. Moshrefzadeh et al. additionally discloses the ratio of the refractive index of the wedge-shaped parts to that of the sheet body being in the range of 0.90 to 0.97 (See for example Page 15, line 23-Page 16, line 7; wherein the ratio is 0.95); an auxiliary diffusing layer (See for example 522 in Figure 5B; Page 14, line 28-Page 15, line 22) formed on the side of the exit surface of the sheet body; the wedge-shaped parts are arranged at a fixed pitch P and the flat end surfaces of

the wedge-shaped parts have a width  $W$  in the range of  $0.1P$  to  $0.2P$  (See for example Page 15, lines 23-31, wherein the width  $W$  is approximately  $0.20P$ ); and light-absorbing particles are dispersed in the wedge-shaped parts (See Page 14, line 28-Page 15, line 31). Moshrefzadeh et al. lacks an end of each of the wedge-shaped parts on the side of the entrance surface being flat surface parallel to the entrance surface. However, Arai teaches a conventional light modifier sheet for diffusing light (See for example Figures 9-10), wherein the light modifier sheet (See for example 14 in Figures 9-10) includes a plurality of wedge-shaped parts (See for example 14c in Figure 10) in the form of ridges. Further, these ridges are oriented such that the narrow portions are located near the light incident side of the light modifier sheet. Also, these narrow portions include a flat surface parallel to the entrance surface (See 14g in Figure 10). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the end of each of the wedge-shaped parts on the side of the entrance surface be flat surface parallel to the entrance surface, as taught by Arai, in the light-diffusing sheet of Moshrefzadeh et al., for the purpose of allowing light to be transmitted into the wedge-shaped parts without undue light scattering or back-reflection.

10. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moshrefzadeh et al. in view of Arai.

Moshrefzadeh et al. in view of Arai discloses the invention as set forth above in Claim 1. Moshrefzadeh et al. in view of Arai further discloses the angle formed by the inclined surface, nearest to the exit surface, of the side surface of the wedge-shaped part and the perpendicular to the entrance surface being greater than the angle formed by the inclined

Art Unit: 2872

surface, nearest to the entrance surface, of the side surface of the wedge-shaped part and the perpendicular to the entrance surface (See Figures 8A-B; Page 18, line 20-Page 20, line 12). Moshrefzadeh et al. in view of Arai does not specifically disclose the angle near the exit surface being not smaller than twice the angle near the entrance surface.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the angle near the exit surface be not smaller than twice the angle near the entrance surface, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. One would have been motivated to have the angle near the exit surface be not smaller than twice the angle near the entrance surface, for the purpose of providing additional diffusive focusing of the incident light, which would allow for increased contrast without reducing the overall transmission or viewing angle of the light-diffusing sheet. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235.

11. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moshrefzadeh et al. in view of Arai.

Moshrefzadeh et al. in view of Arai discloses the invention as set forth above in Claim 1. Moshrefzadeh et al. in view of Arai further discloses that the exit angle of the incident light may be adjusted via the number and angles of the facets on the sides of the wedge-shaped parts (See for example Figures 8A-B; Page 19, line 13-Page 20, line 12).

Moshrefzadeh et al. in view of Arai does not explicitly disclose the ratio of light rays reflected in total reflection by the exit surface to all of the light rays incident on the entrance surface at incident angles in the range of  $0^{\circ}$  to  $30^{\circ}$  is in the range of 0.1% to 3%.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the ratio of light rays reflected in total reflection by the exit surface to all of the light rays incident on the entrance surface at incident angles in the range of  $0^{\circ}$  to  $30^{\circ}$  be in the range of 0.1% to 3%, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. One would have been motivated to have the ratio of light rays reflected in total reflection by the exit surface to all of the light rays incident on the entrance surface at incident angles in the range of  $0^{\circ}$  to  $30^{\circ}$  be in the range of 0.1% to 3%, for the purpose of maximizing or optimizing the overall transmission of the light-diffusing sheet, based on the intended application. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235.

12. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moshrefzadeh et al. in view of Arai.

Moshrefzadeh et al. in view of Arai discloses the invention as set forth above in Claim 1. Moshrefzadeh et al. in view of Arai further discloses that the number and angles of the facets on the sides of the wedge-shaped parts may be adjusted to adjust the diffusing properties of the light-diffusing sheet (See for example Figures 8A-B; Page 19, line 13-Page 20, line 12). Moshrefzadeh et al. in view of Arai does not explicitly disclose the ratio of light rays reflected in total reflection at least twice on the side surfaces of the wedge-shaped parts to all of the light rays perpendicularly incident on the entrance surface is 1% or above. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the ratio of light rays reflected



in total reflection at least twice on the side surfaces of the wedge-shaped parts to all of the light rays perpendicularly incident on the entrance surface be 1% or above, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. One would have been motivated to have the ratio of light rays reflected in total reflection at least twice on the side surfaces of the wedge-shaped parts to all of the light rays perpendicularly incident on the entrance surface be 1% or above, for the purpose of optimizing the diffusing directions of the light-diffusing sheet, based on the intended application. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6995907 to Osawa et al.

Osawa et al. is being cited to further evidence a light-diffusing sheet (See for example Figures 4-6) that is similar in construction to that of Moshrefzadeh et al. and Arai.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 9:30 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2872

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Arnel C. Lavarias  
Primary Examiner  
Group Art Unit 2872  
1/25/08



ARNEL LAVARIAS  
PRIMARY PATENT EXAMINER